

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (currently amended) A balloon catheter, comprising:

an elongate catheter shaft having a distal end, an inflation lumen defined therein, and a guidewire lumen defined therein;

a balloon coupled to the shaft and disposed adjacent the distal end of the shaft, wherein the balloon has an expansion region that contacts a blood vessel wall during use of the balloon;

[[and]]

a traction member positioned exterior of the balloon, the traction member having a first end, a body portion, and a second end, the first end of the traction member being coupled to the balloon catheter proximate the distal end of the shaft and the body portion of the traction member extending proximally over at least a portion of the balloon, the second end of the traction member being unattached to the balloon catheter;

wherein the body portion of the traction member includes one or more gripping surfaces defined in the body portion;

wherein the traction member includes a section that extends over the expansion region of the balloon; and

wherein at least the section of the traction member extending over the expansion region conforms with the expansion region during use of the balloon.

2. (original) The balloon catheter of claim 1, wherein the one or more gripping surfaces are defined by one or more bumps disposed on the body portion.

3. (original) The balloon catheter of claim 1, wherein the one or more gripping surfaces are defined by a helical region within the body portion.

4. (original) The balloon catheter of claim 1, wherein the one or more gripping surfaces are defined by a ridge along the body portion.

5. (original) The balloon catheter of claim 1, wherein the one or more gripping surfaces are defined by one or more saw-tooth projections along the body portion.

6. (original) The balloon catheter of claim 1, wherein the one or more gripping surfaces are defined by one or more spikes along the body portion.

7. (original) The balloon catheter of claim 1, wherein the one or more gripping surfaces are defined by an undulation along the body portion.

8. (cancelled)

9. (original) The balloon catheter of claim 1, wherein a portion of the guidewire lumen is arranged coaxially with the balloon.

10. (original) The balloon catheter of claim 9, further comprising a guidewire disposed in the guidewire lumen and extending distally out of a distal end of the guidewire lumen.

11. (original) The balloon catheter of claim 1, wherein the first end of the traction member is coupled to the shaft.

12. (original) The balloon catheter of claim 1, wherein the first end of the traction member is coupled to the balloon.

13. (currently amended) A balloon catheter, comprising:
an elongate catheter shaft having a distal end, an inflation lumen defined therein and a guidewire lumen defined therein;
a balloon coupled to the shaft and disposed adjacent the distal end of the shaft, the balloon being substantially coaxially arranged with at least a region of the guidewire lumen;
wherein the balloon has an expansion region that contacts a blood vessel wall during use of the balloon; and

a non-woven traction member positioned exterior of the balloon, the traction member having a distal end affixed to the balloon catheter at a position proximate the distal end of the shaft and extending in the proximal direction and a proximal end that is unattached to the balloon catheter, the traction member being configured to provide traction between the balloon and a target site, wherein the traction member includes a section that extends over the expansion region of the balloon and wherein at least the section of the traction member extending over the expansion region conforms with the expansion region during use of the balloon.

14. (original) The balloon catheter of claim 13, wherein the traction member includes a gripping region defined along at least a portion thereof.

15. (previously presented) The balloon catheter of claim 14, wherein the gripping region is defined by one or more bumps disposed on the traction member.

16. (previously presented) The balloon catheter of claim 14, wherein the gripping region is defined by a helical region of the traction member.

17. (previously presented) The balloon catheter of claim 14, wherein the gripping region is defined by a ridge along the traction member.

18. (previously presented) The balloon catheter of claim 14, wherein the gripping region is defined by one or more saw-tooth projections along the traction member.

19. (previously presented) The balloon catheter of claim 14, wherein the gripping region is defined by one or more spikes coupled to the traction member.

20. (previously presented) The balloon catheter of claim 14, wherein the gripping region is defined by an undulation along the traction member.

21. (cancelled)

22. (original) The balloon catheter of claim 13, wherein a proximal end of the traction member is disposed adjacent a proximal waist of the balloon.

23. (original) The balloon catheter of claim 13, wherein a proximal end of the traction member is disposed adjacent a midpoint of the balloon.

24. (original) The balloon catheter of claim 13, wherein a proximal end of the traction member is disposed adjacent a distal waist of the balloon.

25. (currently amended) A medical device, comprising:
a catheter shaft having a guidewire lumen defined therein;
a balloon coupled to the shaft, the balloon being substantially coaxially arranged with respect to at least a region of the guidewire lumen;

wherein the balloon has an expansion region that contacts a blood vessel wall during use of the balloon; and

a non-woven traction member having a distal end affixed to the balloon catheter at a position proximate distal end of the shaft and extending in the proximal direction and along the balloon, wherein the traction member includes a section that extends over the expansion region of the balloon and wherein at least the section of the traction member extending over the expansion region conforms with the expansion region during use of the balloon.

26. (original) The medical device of claim 25, wherein the traction member includes one or more gripping surfaces defined along at least a portion thereof.

27. (original) The medical device of claim 25, wherein the traction member includes a gripping region defined along at least a portion thereof.

28. (original) The medical device of claim 25, wherein the traction member includes a proximal end coupled to the shaft.

29. (currently amended) A medical device, comprising:

a catheter shaft having a guidewire lumen defined therein;
a balloon coupled to the shaft, the balloon being substantially coaxially arranged with respect to at least a region of the guidewire lumen;

wherein the balloon has an expansion region that contacts a blood vessel wall during use of the balloon; and

a traction member including an elongate member having a proximal end and a distal end extending longitudinally exterior of the balloon, the distal end of the traction member coupled to the balloon catheter at a position proximate a distal end of the shaft and extending in the proximal direction and along an exterior surface of the balloon, wherein the traction member includes a section that extends over the expansion region of the balloon and wherein at least the section of the traction member extending over the expansion region conforms with the expansion region during use of the balloon;

wherein the proximal end of the traction member is not attached to the shaft and is disposed adjacent the balloon.

30. (original) The medical device of claim 29, wherein the proximal end of the traction member is disposed adjacent a proximal waist of the balloon.

31. (original) The medical device of claim 29, wherein the proximal end of the traction member is disposed adjacent a midpoint of the balloon.

32. (original) The medical device of claim 29, wherein the proximal end of the traction member is disposed adjacent a distal waist of the balloon.

33. (currently amended) A balloon catheter for expanding an intravascular lesion, comprising:

an elongate catheter shaft having a distal end, an inflation lumen defined therein, and a guidewire lumen defined therein;

a balloon coupled to the shaft and disposed adjacent the distal end of the shaft;

wherein the balloon has an expansion region that contacts the intravascular lesion during use of the balloon; and

means for increasing the traction between the balloon and the intravascular lesion, wherein the means for increasing the traction between the balloon and the intravascular lesion includes one or more non-woven wires affixed to the distal end of the catheter shaft and extending proximally therefrom, wherein the means for increasing the traction between the balloon and the intravascular lesion includes a section that extends over the expansion region of the balloon and wherein at least the section of the means for increasing the traction between the balloon and the intravascular lesion extending over the expansion region conforms with the expansion region during use of the balloon.

34. (currently amended) A balloon catheter for expanding an intravascular lesion, comprising:

an elongate catheter shaft having a distal end and a guidewire lumen defined therein;

a balloon coupled to the shaft and disposed adjacent the distal end of the shaft, the balloon being substantially coaxially arranged with at least a region of the guidewire lumen;

wherein the balloon has an expansion region that contacts the intravascular lesion during use of the balloon; and

means for increasing the traction between the balloon and the intravascular lesion, wherein the means for increasing the traction between the balloon and the intravascular lesion includes one or more non-woven wires affixed to the distal end of the catheter shaft and extending proximally therefrom, wherein the means for increasing the traction between the balloon and the intravascular lesion includes a section that extends over the expansion region of the balloon and wherein at least the section of the means for increasing the traction between the balloon and the intravascular lesion extending over the expansion region conforms with the expansion region during use of the balloon.

35. (currently amended) A method for treating an intravascular lesion, comprising the steps of:

providing a balloon catheter, the balloon catheter including a catheter shaft having a guidewire lumen defined therein, a balloon coupled to the shaft substantially coaxially arranged with respect to at least a region of the guidewire lumen, and a traction member including one or

more non-woven wires having a distal end affixed to the shaft at a position distal of the balloon and extending in the proximal direction and along the balloon;

wherein the traction member further comprises a proximal end that is free from attachment to the shaft;

wherein the balloon has an expansion region that contacts a blood vessel wall during use of the balloon, wherein the traction member includes a section that extends over the expansion region of the balloon, and wherein at least the section of the traction member extending over the expansion region conforms with the expansion region during use of the balloon;

advancing the balloon catheter through a blood vessel to a position adjacent a target site;
and

inflating the balloon, whereby the traction member is disposed between the balloon and the target site and improves the traction between the balloon and the target site.

36. (previously presented) The balloon catheter of claim 1, wherein the traction member includes one or more non-woven wires.

37. (previously presented) The balloon catheter of claim 1, wherein the traction member extends longitudinally over at least a portion of the balloon.

38. (previously presented) The balloon catheter of claim 13, wherein the traction member extends longitudinally over at least a portion of the balloon.